PHYLLIDIA (PHYLLIDIELLA) ZEYLANICA KELAART, A RARE NUDIBRANCH FROM THE INDIAN SUBCONTINENT

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Abstract

The recently rediscovered *Phyllidia zeylanica* Kelaart (1858) from the Gulf of Kutch is a valid species referable to the subgenus *Phyllidiella* Bergh (1869). Its specific characteristics are three concentric black bands upon the notum and the pink tubercles crowded into longitudinal series. Other records of Phyllidiidae from the Indian Subcontinent are *P. ocellata* Cuvier (1804), a prior synonym of *P. multituberculata* Boettger (1918), and the radially patterned *P. elegans* Bergh (1869).

Introduction

Two specimens of the recently rediscovered *Phyllidia zeylanica* Kelaart (1858) have been examined and compared with other species by the writer, in order to justify the identification proposed by Narayanan (1969: 205) and to establish the species as a valid taxonomic unit. This research was undertaken as an addendum to the writer's nearly completed studies on the family Phyllidiidae in Australian waters.

The writer in indebted to the Fisheries Research Station, Government of Gujarat, Jamnagar, India, for permission to study and report upon the specimens from their Museum, and to Mr K. R. Narayanan, Senior Research Assistant, for first directing attention to the specimens. This research was carried out while the writer was in receipt of a grant from the Science and Industry Endowment Fund, CSIRO.

Description

Phyllidia (Phyllidiella) zeylanica Kelaart

Phyllidia zeylanica Kelaart, 1858: 120; 1859: 494; Eliot, 1906: 674, pl. 42, fig. 10; Pruvot-Fol, 1956: 67; Narayanan, 1969: 205, fig. 14-15.
Phyllidia ceylanica (sic) Bergh, 1869: 509 and footnote.

Material. Pirotan Island, off Jamnagar, Gulf of Kutch, India, October 1966 and March 1967, two specimens collected by Mr K. R. Narayanan. They were taken from knee-deep intertidal pools, fringed by massive living corals (genus *Favia* ?) and with much seaweed growing in them. One specimen was found suspended from the surface (? by mucus) and the other was resting at the hard bottom of the pool. The specmiens are deposited in the Museum of the Fisheries Research Station, Government of Gujarat, Jamnagar, India.

Description. The two preserved specimens measure respectively 21 and 18 mm in length, 11·5 and 8 mm in breadth, and 5 and 3 mm in height. Alive they were 22 and 20 mm in length, with pink tubercles separated by black lines on the notum (Narayanan 1969). As preserved, both specimens (Pl. 6, figs. a-b) have a pale greenish-yellow body colour distinctively patterned with black on the notum. The pattern of the black lines agrees precisely with Kelaart's description (1858) and his figure in Eliot (1906). In addition to the three nearly continuous black bands encircling the notum, there is an interrupted median line of black. The outermost

its colour patterning of three concentric black bands separated by rows of pink tubercles on the notum. It is nearest to the Tahitian *P. (Phyllidiella) rosans* Bergh 1873: 66, = *P. nigra* Pease, 1868: 80, non van Hasselt, 1824), which differs notally only in the tawny-pink tubercles forming low ridges instead of rows of distinct tubercles, and five instead of three concentric black bands. The pharyngeal parts of *P. rosans* have many more small oral glands than reported here for *P. zeylanica,* but this may be due to the differences in size of the examined animals: *rosans* 32 mm and *zeylanica* 18 mm. It is not improbable that *P. zeylanica* and *P. rosans* represent relict populations of a once widespread Indo-West Pacific species; examination of more material of each species might indicate that the latter should be regarded as a subspecies of the former.

P. zeylanica is distinguished from other species of the subgenus *Phyllidiella* by the absence of large or small tubercles spread evenly over the notum (*P. pustulosa* Cuvier, 1804), or gathered together in quincunces (*P. nobilis* Bergh, 1869) or longitudinal compound series (*P. catena* Pruvot-Fol, 1956 and *P. seriata* Pruvot-Fol, 1957).

There are very few records of Phyllidiidae from the Indian Subcontinent. Kelaart's specimen of *P. zeylanica* came from Trincomalie, Ceylon, and the present specimens from the Gulf of Kutch which lies over 1000 miles to the northwest. Farran (1905: 345) recorded specimens from the Gulf of Mannar under the names *P. varicosa* and *P. nobilis.* From their descriptions, the first is possibly *P. ocellata* Cuvier (1804), referred to below, and the second is the radially patterned *P. elegans* Bergh (1869). O'Donoghue (1931: 164) reported *P. multituberculata* Boettger (1918) from 40-50 fm off Madras. Through the good offices of Dr S. T. Satymurti, Director of Museums, Madras, a photograph (Pl. 6, fig. d) of the larger of O'Donoghue's two specimens was obtained, from which the identification was confirmed. However, comparison of the original figure and the present photograph of *P. multituberculata* with the redescription and figures of the type of *P. ocellata* Cuvier (1804; Pruvot-Fol, 1956: 62, fig. 2) show that they are one and the same species. Accordingly, the former taxon must be replaced by the latter in Indian faunal lists.

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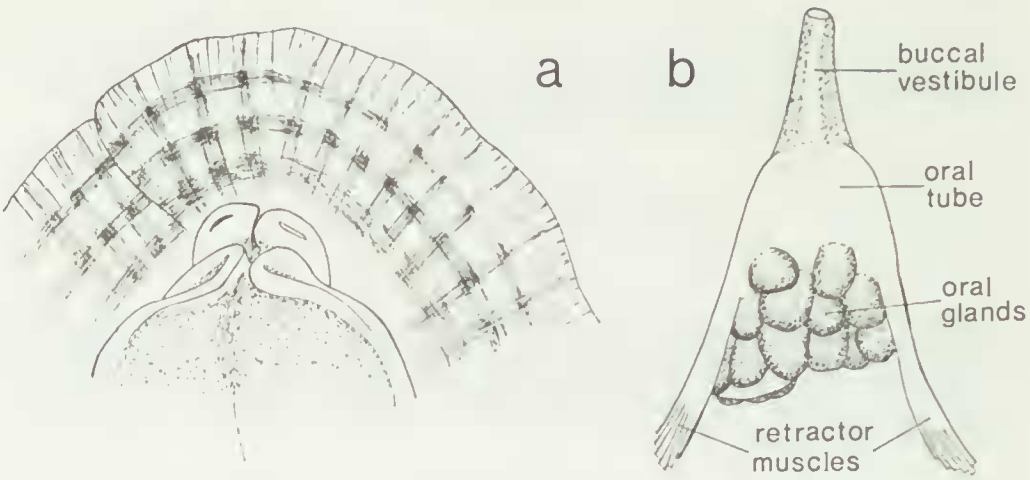

FIG. 1—a. Ventral aspect of anterior body; b. Dorsal aspect of pharyngeal parts.

band is very narrow and just within the notal margin. The second band is wider than the outermost and separated from it by a single row of tubercles. The innermost band is at least twice as wide as the second and separated from it by a double or rarely triple row of generally larger tubercles. The interrupted median line is separated from the innermost band by a single row of tubercles along each side. The rhinophoral and anal cavities lie within the innermost band. The black peritonium shows externally through the sole of the foot and in the inner hyponotum; in life, it was bluish-grey.

The notal ornament follows the colour pattern in that, except in the median line, there are no tubercles in the black-pigmented bands. The tubercles are generally rather small, conical in shape with rounded tops. The anal aperture opens at the top of a tubercle. The rhinophoral cavities have low sheaths, and the rhinophores are black.

The sole is thin marginally, deeply indented anteriorly but not notched, and there is no median colour line. The contiguous oral tentacles are small, flatly tapering and laterally furrowed (Fig. 1a). The long buccal vestibule is wider posteriorly. The cream oral tube is flask-shaped and covered posteriorly with flat scale-like oral glands (Fig. 1b).

Discussion

Until the collection of these two specimens, *P. zeylanica* was a lost species that had not been seen for 110 years. Even with its rediscovery, it remains a very rare species; Kelaart had only one specimen, the repository of which is unknown, and no other specimens have been noticed in the literature of the intervening years. Bergh (1892: 1128) included *P. zeylanica* among the synonyms of *P. varicosa* Lamarck (1801), but as Eliot later pointed out (1906: 674) and confirmed by the present study, this identification cannot be justified. Colouration, pattern of the notal tubercles, and shape of the pharyngeal parts differ in the two species, and moreover, according to the writer's nearly completed studies on the Australian Phyllidiidae, each species belongs to a different subgenus. *P. varicosa* belongs to the nominal subgenus *Phyllidia,* and *P. zeylanica* to the subgenus *Phyllidiella* Bergh (1869).

P. zeylanica is characterized by its small size of under 25 mm in length and

PLATE 6

Phyllidia (Phyllidiella) zeylanica Kelaart.

a. Dorsal view of larger specimen.
b. Dorsal view of smaller specimen.
c. Ventral view of same.

Photographs by Brian J. Smith.

Phyllidia (Phyliddia) ocellata Cuvier.

d. Dorsal view of O'Donoghue's larger specimen, length 48 mm.

Photograph by Madras Government Museum, India.